

COMBINED HEAT AND POWER C ENERGY SOLUTIONS FOR THE 21ST CENTURY
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WELCOMING REMARKS

BY

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Thank you very much for the invitation to speak here today. I am sorry John Beale couldn't be here as he had hoped to be; he got caught by the flu bug and it wouldn't let go.

I would like to offer special thanks to Dan Reicher and his staff from the Department of Energy for helping to nurture and develop what I believe is one of the most positive working relationships between the federal agencies. I look forward to continue building the relationship exemplified by the conference here today.

And I would also like to thank Mark Hall from Trigen, Michael Brown from the International Cogeneration Alliance, members of the U.S. Combined Heat and Power Association (USCHPA), and the other members of the program and advisory committees. Like Dan, I know how

much work it takes to convene a first rate conference. My congratulations to you all.

Introduction

There are three key points I want to make here today:

1. First, in any dynamic economy that emphasizes both growth and environmental quality, there is little room for wasted resources, whether labor, capital or energy. Because their system efficiencies often exceed 80 percent, the family of combined heat and power technologies must rank high in our pollution prevention strategies.
2. Second, EPA is committed to meeting the challenge of doubling CHP capacity by 2010, both in its own laboratories and facilities, and in its program designs.
3. And lastly, we believe that seizing the opportunities for meeting the goal of doubling CHP capacity is done best by building effective partnerships with industry, state and local governments, and consumer, environmental, and labor groups.

CHP as a Pollution Prevention Strategy

One of the most compelling reasons for promoting the deployment of CHP technology is the indefensible waste of our current power generation technologies in the United States. Conventional electricity

generation in the U.S. converts only about a third of the fuel's potential energy into useable electricity.

This may not seem like a big deal until you realize that the amount of waste heat from our nation's power plants (approximately 24 quads) is greater than Japan's total energy use, including all of the energy needed to heat and cool its buildings, power its industrial operations and transport its people and goods (about 21.4 quads). The energy that we waste from generating our electricity is 50 percent greater than the total amount of energy used in the combined economies of Central and South America, or the countries of the Middle East (about 17.7 and 14.6 quads, respectively). Perhaps more important, however, the level of system efficiency has not improved since the 1960's.

By comparison, CHP systems can reach total thermal and electric efficiencies of 60-80 percent or more. These higher levels of efficiency, almost by definition, imply lower carbon emissions and reduced air pollutants. Clearly, CHP systems, especially when combined with clean energy such as fuel cell technologies and renewable energy resources, offer a huge pollution prevention opportunity for the United States and around the world.

Meeting the CHP Challenge

I am pleased to say that EPA's recognition of the CHP opportunity is more than empty rhetoric. We are working to promote clean, efficient technologies in our own facilities, in our programs, and in our partnership with DOE, US CHPA, and those of you participating in this event today.

In Our Facilities

Let me give you three examples of steps EPA is taking to promote smart technologies in our own laboratories and facilities.

First, in EPA's National Vehicle and Fuel Emission Laboratory (NVFEL) in Ann Arbor, MI, we have awarded an energy savings performance contract to replace its aging and inefficient infrastructure with a \$9 million upgrade that includes combined heat and power components. When the work is completed later this spring, we anticipate a 75 percent reduction in our energy costs, a 70 percent reduction in electric demand, a 77 percent reduction in water use, and reductions in power generation pollution of 7,000 tons of carbon dioxide, 100,000 pounds of SO_x, and 39,000 pounds of NO_x. We

expect even better results from projects soon to be awarded in our Rhode Island and Oklahoma laboratories.

Second, EPA will begin purchasing 100-percent renewable electricity for its Region 9 Laboratory located in Richmond, California, starting in May 2000. The laboratory requires approximately 1.8 million kilowatt-hours of electricity annually. By purchasing renewable-based electricity, we will reduce associated carbon dioxide emissions by more than 1,100 tons. This is the equivalent to reducing the number of miles driven annually in California by 2 million miles.

As a third example, we will soon launch an important partnership with DOE, Siemens-Westinghouse, and CINERGY that will lead to the installation of a 1 megawatt solid oxide fuel cell system, powered by natural gas, at our laboratory at Ft. Meade, MD. A heat recovery system will be included to provide additional electricity. We conservatively estimate that carbon dioxide emissions will be reduced by 2,300 tons annually. SO_x and NO_x emissions from the facility will be negligible.

These projects are consistent with the President's Executive Order on Greening the Government through Efficiency Energy Management,

which mandates that federal agencies reduce greenhouse gas emissions 30 percent by 2010 compared to 1990 emission levels.

And these projects will help contribute to achieving the DOE and EPA challenge to double CHP capacity by 2010.

In Our Programs

As most of you know, the Energy Star and Climate Wise programs have been hugely successful in securing voluntary reductions of greenhouse gas emissions. For example, the Energy Star programs, which we operate in partnership with DOE, reduced electricity consumption by 28 billion kilowatt-hours in 1998. We think the growing success of these voluntary programs, as well as industry's own initiatives, are among the reasons why the nation's energy intensity has declined by an average of 3.4 percent annually in the years 1996 through 1998.

Just a few years ago, some economists were telling us that the nation's competitiveness would be weakened if we pushed our annual improvement in energy intensity much beyond about 1.25 percent annually. But as the President said last week in his State of the Union

Message, a strong economy and a healthy environment are not mutually exclusive ideas. That is especially true when we build a more energy-efficient economy and the performance of our economy over the last few years bears witness to this fact.

At the same time, however, we recognize that energy efficiency improvements on the customer's side of the meter can take us only part of the way toward the pollution reductions needed to enhance air quality and the global environment. We also need to accelerate the deployment of clean, high efficiency power technologies. This includes distributed generation, renewable energy, and combined heat and power systems.

I believe that EPA can play a strong role in deploying these technologies through our voluntary programs. As some of you may know, we are in the process of reorganizing my office so that EPA will be better positioned to meet the challenges of climate change and atmospheric pollution. As we build our new structure, we will explore ways that EPA can encourage the use of clean, highly efficient power technologies.

Dan Reicher has already referred to our new Energy Star CHP Award. This is an important effort to recognize those CHP systems which use 10 percent less energy than the equivalent output from the most efficient, stand-alone generating units and steam boilers.

As Dan has noted, the deadline for applications closed at the end of January. We expect to announce the winners by the end of March during our annual Energy Star Awards banquet. I think you will agree that this will be an important step in building a higher profile and recognition for the CHP family of technologies.

Beyond these efforts, I also believe that it is important that EPA continues to work to better understand how its regulations may create barriers to the deployment of CHP technologies. To the extent that inappropriate regulatory barriers are holding back technologies that would provide across-the-board environmental benefits, we need to consider how these barriers can be overcome. But EPA must always proceed in an environmentally responsible manner that ensures that the country's regulatory safeguards remain transparent and enforceable.

Working In Partnership

The final point I would like to make is the importance of us working together. There is little question that CHP and distributed generation technologies represent exciting opportunities to improve our environment and our economy. The only real opportunity to capture the full economic potential of CHP systems is to forge a market-based partnership between industry and government.

In light of this, I believe that we must continue our cooperative efforts with DOE, and continue building our relationship with the USCHPA, while we look for ways to expand on our working relationships with those of you that produce these exciting technologies and the commercial and business users of those systems. Most importantly, we must continue to listen and learn from our partners so that, together, we can identify appropriate market-based solutions that will achieve the very important goal of doubling CHP capacity by 2010.

Conclusion

In conclusion, I believe that this symposium is an important step in fostering these partnerships, and that is why I am glad you are all here today. My heartfelt thanks once again for the opportunity to speak here

today. I'm sorry John couldn't make it, but he extends his thanks as well and looks forward, as I do, to working with you.